



PRINTERS

FAQ

Q I've heard that inkjet printers have lower running costs if they use separate ink tanks for each colour. Is this true?

A Not necessarily. Many inkjets use a black cartridge and a three-colour cartridge that contains cyan, magenta and yellow inks.

Everyday colour printing exhausts all three colours at roughly the same rate, but when one runs out the entire cartridge must be replaced.

Other inkjets (such as the HP Photosmart 8250, reviewed opposite) have a separate ink cartridge for each colour. You replace only the ink cartridge that's empty, but you won't save money unless each tank lasts longer or costs less than those used by tri-colour printers.

To work out the approximate cost of each colour page, divide the price of a tri-colour cartridge by the number of pages the manufacturer says it will print. Use the figure given for 15 per cent coverage. With single-colour supplies, make a similar calculation for the cyan, magenta and yellow cartridges using the figure for five per cent coverage, then add the three costs together.

The table in this month's inkjet labs (page 198) compares nine printers and shows that no system gives a clear cost advantage. However, printing many photos with a strong colour bias (such as images of a blue sky) can run a single ink down very quickly. For this reason, we prefer photo printers to use individual inks.

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REVIEW MULTIFUNCTION PERIPHERAL

LEXMARK
P6350

RATING ★★★★★

PRICE £100 including VAT

SUPPLIER www.pcworld.co.ukDETAILS www.lexmark.co.uk

This multifunction peripheral (MFP) comes from Lexmark's photo printer range. It has several memory card slots and takes two cartridges for six-ink printing. It looks good, but its low profile and paper output tray look like a *Robot Wars* entrant.

The P6350's colour screen displays a helpful animation that shows how to insert new ink cartridges, and a spotlight highlights the correct slots. The print heads are aligned automatically. Installing the software is straightforward, but the print driver has only three quality settings and virtually no advanced options.

The P6350's six-ink setup isn't ideal for black text, as it creates black from multiple colours. What's more, in this setup the fastest print mode isn't available, and the printer managed only 1.6 pages per minute (ppm) in our tests. With an optional black cartridge, the P6350 can use the Quick Print setting, which outputs pages at 13.6ppm.

We weren't impressed by the quality of printed text using either cartridge configuration. Character outlines were quite diffuse, with more jaggedness than we'd expect at high quality settings. Each page costs around 3.7p, so mono text printing isn't as cheap as it is with some inkjets. Colour pages cost about the same, though, which is very competitive. Unfortunately, Lexmark's photo cartridge costs over £16 and lasts for just 135 prints.

This MFP is designed for home photo printing and produces acceptable prints reasonably quickly. Photos showed little grain and good contrast, although in some test shots we could make out



slight banding. Printing directly from a memory card was simple, but the slot was reluctant to accept and release our SD card.

Lexmark's TWAIN interface makes typical scan jobs easy, but you have to use an advanced settings page to scan at more than 300dpi. The scanner was very slow at high resolutions, taking four minutes and 36 seconds to capture a 6x4" photograph at 1,200 dots per inch (dpi). Colours were reproduced accurately and focus was reasonable, but detail was lost from the darkest areas of our tests.

The P6350's ease of use makes it suitable for novices, but it isn't ideal for printing lots of text. HP's PSC 1610 MFP (reviewed in *Shopper*, September 2005) doesn't have a colour preview screen, but it performs better and costs less.

Simon Handby

✓ Good value; decent scans and photo prints; very easy to set up and use; low colour running costs

✗ Slow scanner; text printing slow without black cartridge

SPECIFICATIONS 4,800x1,200dpi print resolution, 1,200x2,400dpi scan resolution, USB Hi-Speed and PictBridge USB interfaces.
Part code 22T0002

HOTLIST LASER PRINTER

SAMSUNG
ML-2250

RATING ★★★★★

PRICE £98 inc VAT

SUPPLIER www.savastore.comDETAILS www.samsung.co.uk

Samsung's ML-2250 takes a single 5,000-page-rated consumable, which is enough for 10 reams of paper; each sheet costing 1.33p to print. Print quality is excellent. This printer has 16MB of memory and a 250-sheet input cassette, so it's well specified. You can also upgrade the memory and add networking. This is a great-value printer.



SPECIFICATIONS Mono laser, 1,200dpi, 20ppm maximum speed, USB Hi-Speed interface. Part code ML-2250/XEU

HOTLIST COLOUR LASER PRINTER

EPSON
AcuLaser C1100

RATING ★★★★★

PRICE £229 inc VAT

SUPPLIER www.misco.co.ukDETAILS www.epson.co.uk

Epson's C1100 is reasonably large for a four-pass colour laser, and it's more tricky than many to set up. In our tests it came commendably close to Epson's claimed speeds, but the most welcome discovery was its superb all-round print quality. This is an excellent, inexpensive printer with reasonable running costs.



SPECIFICATIONS Colour laser, 600dpi, 25ppm mono/5ppm colour maximum speed, USB Hi-Speed interface. Part code C11C567001

HOTLIST MULTIFUNCTION PERIPHERAL

HP
Photosmart 2610

RATING ★★★★★

PRICE £176 inc VAT

SUPPLIER www.savastore.comDETAILS www.hp.co.uk

This MFP is a great all-rounder. Its scanner has no automatic document feeder, but it's fast and delivers good results. Text printing is quick, and affordable at 2.2p per page. Print and copy quality is excellent. At this price, its network port and built-in fax make it a bargain.



SPECIFICATIONS 4,800x1,200dpi print resolution, 2,400x4,800dpi scan resolution, USB, Wired 10/100 Ethernet and PictBridge USB interfaces. Part code Q5542B

REVIEW PHOTO INKJET PRINTER

HP Photosmart 8250

RATING ★★★★★

PRICE £135 including VAT

SUPPLIER www.dabs.com
DETAILS www.hp.co.uk


HP claims that the Photosmart 8250 is the world's fastest photo printer. It's the first HP consumer inkjet to use an individual ink tank for each of its six colours, rather than the typical HP supplies that combine three colours into a single cartridge.

Instead of using on-cartridge print heads, the 8250's tanks supply ink through capillaries to a permanent head. This has 3,900 nozzles and a comparatively large area, so it can lay down plenty of ink with each pass. Although the Photosmart 8250 is a departure for HP, the company says it doesn't represent a general change of direction for its inkjet devices.

HP says the 8250 can print a 6x4" photo in as little as 14 seconds, but we couldn't match this speed in our tests. At its top-quality setting, the 8250 completed our six borderless 6x4" photos in 11 minutes and 35 seconds, which is very fast for an inkjet. By lowering the print quality to Fast Draft we reduced the printing time to a little over four minutes: faster even than affordable dye-sublimation printers.

Even at this setting, the 8250's output was free from banding and excessive grain. Photos printed at top quality were generally excellent, but several test images suffered from a very subtle speckled band at one edge. Prints made directly from a memory card had highly saturated colours, but these generally enhanced the subject without becoming garish.

The printer's configuration means there's no need to swap cartridges to get decent results on

plain paper. The 8250 printed our draft text test at over 18.5 pages per minute (ppm), and reached 2.4ppm on our mixed-colour test. Print quality was consistently very high, with crisp black text and solid-looking colours, but the printer's output tray needs a more substantial lip to prevent paper spillage during high-speed printing.

The Photosmart 8250 has plenty of useful photo printing features, such as a range of memory card slots, two paper trays and a preview screen. Although we couldn't match HP's speed claims, the 8250 was still among the fastest inkjets we've seen. With low running costs of around 2.3p per mono page and 5.5p in colour, this is an excellent all-rounder.

Simon Handby

 **Fast, high-quality plain paper and photo prints; easy to use; cheap to run**

 **Unruly paper output at high speeds; slight speckling in some photos**

SPECIFICATIONS Six-colour inkjet, 4,800x1,200dpi, USB Hi-Speed and PictBridge USB interfaces. **Part code** Q3470B

HOTLIST INKJET PRINTER

CANON PIXMA iP1500

RATING ★★★★★

PRICE £40 inc VAT

SUPPLIER www.misco.co.uk
DETAILS www.canon.co.uk


The iP1500 is the baby of Canon's PIXMA range and does without the advanced paper handling of the more expensive models. It's a great little printer, though, producing excellent text and good photographs quickly. It's the best affordable inkjet we've tested, but like other budget devices it's not cheap to run.

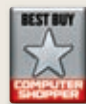
SPECIFICATIONS Four-colour inkjet, 4,800x1,200dpi maximum resolution, USB interface. **Part code** 9319A011AA

HOTLIST COLOUR LASER MFP

EPSON AcuLaser CX11NF

RATING ★★★★★

PRICE £582 inc VAT

SUPPLIER www.misco.co.uk
DETAILS www.epson.co.uk


Multifunction peripherals based on colour laser printers aren't getting any smaller, but they're finally affordable. This hulking Epson is the best example we've tested. It has built-in fax capability, a good scanner and great print quality. It's easy to install and use, but colour prints could be cheaper.

SPECIFICATIONS 600dpi print resolution, 25ppm mono/5ppm colour maximum speed, 600x600dpi scan resolution, USB Hi-Speed and 10/100 Ethernet interfaces. **Part code** C11C588081DA

BYTE SIZE!



Our round-up of the best new gadgets and software

D_SKIN d_skin disc protectors

RATING ★★★

PRICE £6 inc VAT for five skins

SUPPLIER FMG 01225 864999

DETAILS www.dskin.net

These disc protectors fit over any 12cm optical media, forming a thin barrier protecting the shiny side. You can replace a damaged d_skin with a new one, but they don't protect the label side, where a scratch is usually more serious.

The skins didn't interfere with playback in our tests on a variety of PCs, DVD players and stereos. They fit snugly on to shop-bought DVDs, but could rotate around writable media. They protect against light scratches, but these can often be repaired by products such as Skip Doctor (reviewed in *What's New*, September 2005), which may prove more cost-effective.

Simon Handby



SENNHEISER PC 160 gaming headset

RATING ★★★★★

PRICE £80 inc VAT

SUPPLIER www.dolphinmusic.co.uk
DETAILS www.sennheisercommunications.co.uk

Sennheiser's PC 160 headphones have a built-in microphone, so you can scream commands to your friends while you play games online. They may seem pricey, but they produce airy and immersive sound with crisp and solid treble, although bass could do with greater force. The microphone records crisp and clear sound while filtering out background noise.

The PC 160s are comfortable to wear, with thickly padded earpieces and a headband, although the headband padding came unglued after a few hours. The 10' cable, while generous, tends to get tangled, so a spool would be useful.

If you play a lot of games online, particularly games such as Counter Strike, then these headphones are an excellent choice.

Alan Lu





REVIEW MULTIFUNCTION PERIPHERAL

CANON
PIXMA MP450

RATING ★★

PRICE £135 inc VAT

SUPPLIER www.savastore.comDETAILS www.canon.co.uk

This multifunction peripheral is one of 14 new inkjet devices that Canon has just released in a major update of its PIXMA range. We've reviewed three of the new printers in this month's Labs, which starts on page 193.

The PIXMA MP450 sits roughly in the middle of Canon's multifunction inkjet range. Canon describes it as a 'photolab multifunctional' as it has some useful photo printing features, including a 4.7cm colour display and a PictBridge USB port. It also has memory slots for five different card formats, but these are in an awkward position and can't read xD cards without an optional adaptor. More unusual is the MP450's infrared port, which supports direct printing from compatible mobile devices.

This device is fairly easy to set up, although it took us ages to find and remove all its orange transit tape. The MP450 comes with the higher-capacity versions of Canon's new ink cartridges, but these still have an unimpressive yield of 300 mono pages and 275 colour pages. Using these cartridges, colour pages cost around 8.5p each, and each mono page costs a shocking 6.7p.

The MP450 performed competently in our plain paper print tests, delivering high-quality text at 6.8 pages per minute (ppm) and draft text at 8.6ppm. It was impressive when printing in colour, and our 24-page test document appeared at a steady 1.9ppm.

Photo printing was particularly fast: the MP450 took just under nine minutes to print six borderless

6x4" prints at its highest quality. Photos looked decent, but on Canon's Photo Paper Pro they suffered from a lack of detail and contrast in dark areas.

The scanner is often a multifunction peripheral's weak point, but the MP450's was fast and produced particularly good results in our tests. Colours remained accurate, and detail was preserved in the darkest and lightest regions of each image. A4 copies made at the default setting took 15.5 seconds in black only and 55 seconds in colour. The quality of each was very high.

The MP450 is a capable performer, but it's not especially good value compared with the Lexmark P6350 reviewed on page 26. We were also disappointed by its running costs, which are too high for this class of product and greatly reduce its appeal.

Simon Handby

✓ High-quality prints, scans and copies

✗ Very high running costs; limited memory card support

SPECIFICATIONS 4,800x1,200dpi print resolution, 1,200x2,400dpi scan resolution, USB Hi-speed and PictBridge USB interfaces.
Part code 0577B007

CHOOSING A...

LASER
PRINTER

Follow our step-by-step guide to identify your ideal laser

1 Prices for A4 laser printers start at around £70, with specs such as those in grey below. These models are fine for a Windows user who prints less than one packet of paper a month. Look for good print quality, flexible drivers and running costs below 2p per page. The printer should ideally hold paper clean and flat in a horizontal tray and allow manual feeding of headed paper and envelopes with no creasing.

2 You must spend more for a printer with the build quality and speed to cope with a heavy workload. Heavy users or small workgroups need up to 25 pages per minute (ppm), and whole departments need even more. Bulk printing demands costs of 1p per page or less.

3 Colour lasers are now available for less than £200, but at this price they will print colour far slower than mono. If colour speed is important, consider spending £400 or more to get a single-pass model.

4 Support for a printer language such as Printer Control Language (PCL) 6 or PostScript 3 means you can use the printer with any computer. Not all lasers print graphics well, but a 1,200dpi resolution helps. Colour lasers can print high-quality graphics, but should have at least 32MB of memory.

5 A network adaptor allows you to connect a printer to an Ethernet network, so all the network users can print to it directly. Smaller groups can use a PC to host and share any printer.

6 Duplex printing is a popular and increasingly affordable option. A scanner/fax unit turns your printer into a multifunction peripheral. Large groups should get multiple paper trays to deal with headed paper and other stationery.

FILL IN YOUR SPECS HERE
(Recommended minimum in grey)

RESOLUTION: 600x600dpi

MEMORY: 8MB

SPEED: 12ppm

INTERFACES: USB

PAGES PER MONTH: 5,000

PAPER TRAYS: 150-sheet A4

OPTIONS:

HOTLIST INKJET PRINTER

HP
Photosmart 8150

RATING ★★★★★

PRICE £124 inc VAT

SUPPLIER www.misco.co.ukDETAILS www.hp.co.uk

This printer uses HP's new ink cartridges and comes with six-ink printing as standard. The optional black cartridge printed draft text at 17.5 ppm.

This printer excels with photos, though, and it produces natural-looking prints with accurate colours. Best of all, it is equipped with PictBridge and memory card support, and has superb direct printing features.

SPECIFICATIONS Six-colour inkjet, 1,200x4,800dpi maximum resolution, USB and PictBridge interfaces. **Part code** Q3399B



HOTLIST INKJET PRINTER

CANON
PIXMA iP3000

RATING ★★★★★

PRICE £69 inc VAT

SUPPLIER www.savastore.comDETAILS www.canon.co.uk

The iP3000 has two paper input trays, standard duplex printing and a PictBridge USB port. It prints borderless A4 photos and can even

print on specially coated CDs. This is an impressive and unique set of abilities for the price, and it's also quick and cheap to run, with high print quality.

SPECIFICATIONS Four-colour inkjet, 1,200x4,800dpi maximum resolution, USB and PictBridge interfaces. **Part code** 9316A011AA

